OPERATOR'S MANUAL

MODEL 72-190 LOGIC PROBE (20MHz FREQUENCY DISPLAYABLE)

MODEL 72-360 LOGIC PULSER

MODEL 72-500 LOGIC PROBE (50MHz FREQUENCY DISPLAYABLE) & LOGIC PULSER

LOGIC PROBE (model 72-190. 72-500)

INTRODUCTION

The logic Probe is ideal for troubleshooting and analysis of logic circuits. It works as a level detector a pulse detector a pulse stretcher, and a pulse memory (model 72-190 only). It features include

a. Circuit powered.

b. LED indicators: HI (red LED), LO (green LED). and PULES/MEMORY (yellow LED) (model 72-190 only).

c. Switch-selectable pulse detection or pulse memory function (model 72-190 only).

d. Switch-selectable TTL or CMOS circuits. (model 72-190 only).

OPERATION

a. Attach red alligator clip to positive side of d.c. power supply of printed circuit board under test.

b. Attach black alligator clip to negative side of d.c. power supply of printed circuit board under test.

c. LED Display Pattern:

MODEL	72-190			72-500	
INPUT SIGNAL	LED			LED	
	HI	LO	PULSE	HI	LO
Logic "1"	●	○	○	●	○
Logic "O"	○	●	○	○	●
Bad Level or Open Circuit	○	○	○	○	○
Square Wave <200KHz	●	●	*	●	●
Square Wave >200KHz	◑	◑	*	●	●
Narrow High Pulse	○	●	*	●	●
Narrow Low Pulse	●	○	*	●	●

● LED ON ○ LED OFF ◑ LED may or may not be on.

* Blinking LED, Intensity is proportional to the duty cycle of the signal observed.

Note: If model 72-500 LOLED lighted, when power supply voltage is upper 10V
This is normal condition, will not effect the logic probe features.

D. After the PULSE/MEMORY Switch is placed in MEM position, the Pulse indicator (yellow LED) will latch on with the first transition (either rising or falling). Thereafter, as long as the probe is powered, the LED will remain on until reset by switching to PULSE position. (72-190 only).

SPECIFICATIONS

GENERAL :	Operating Temperature.	.0°C to 50°C, 80% Relative Humidity
	Storage Temperature	.–20°C to 65°C, 75% Relative Humidity
	Weight	.72-190 1.6 Ounces (45g) approx.
		72-360 1.4 Ounces (40g) approx.
		72-500 1.76 Ounces (50g) approx.
	Dimensions	.8.2 Inches (21cm) Long X
		0.7 Inch (1.8cm) Wide X
		0.7 Inch (1.8cm) Deep.

ELECTRICAL (AT 23±5°C, 75% Relative Humidity Maximum):

MODEL		72-190	72-500
Maximum Input Signal Freguency		20MHz	50MHz
Input Impedance		1 M Ω	120K Ω
Operating Supply Range:		4V DC Minimum, 18V DC Maximum	
TTL:	Logic "1" (HI LED).	>2.3 ± 0.2V DC	>3.0 ± 0.25V
	Logic "O" (LO LED)	<0.8 ± 0.2V DC	<0.75V ± 0.25V
CMOS:	Logic "1" (HI LED)	>70% Vcc ± 10%	>60%Vcc ± 5%
	Logic "0" (LO LED)	<30% Vcc ± 10%	<15% Vcc ± 5%
			<40% Vcc ± 5% For 7-18Vcc
Minimum Detectable Pulse width		30 Nanoseconds	10 Nanoseconds
Maximum Signal Input Protection		±220V AC/DC (15 sec)	± 70V AC/DC (15sec)
Power Supply Protection		± 20V DC	± 20V DC
Pulse Indicator Flash Time		500ms	

72-500
When supply voltage is 7-18 Vcc Green LED may be light. This is normal condition.

LOGIC PULSER (model 72-360 & 72-500)

INTRODUCTION

The Logic Pulser is a very effective tool for inspecting and repairing the logic circuits. It can be used directly to inject a signal into the logic cirucuits without removing the IC or breaking the circuits. The 100mA pulse output insures that the device under test will be pulsed, while the short 10μS duration of the output pulse makes sure that no damage will be done to the circuit under test. The Logic Pulser output is switchable between 0.5 and 400Hz, making it suitable for use with either a logic probe or with an oscilloscope, also has an external sync input, which enables the user to synchronize the pulse output with an external signal, such as a computer clock circuit.

OPERATION

a. Attach red alligator clip to positive side of d.c, power supply of printed circuit board under test.
b. Attach black alligator clip to negative side of d.c. power supply of printed circuit board under test.
c. Setting the repetition rate switch to 0.5pps or 400pps.

SPECIFICATIONS

Sync Input Impedance	1M Ω
Pulse Rate	0.5/400 Hz
Pulse Width	10 μS
Output Current	100mA sink/source
Square Ware Output Current	5mA sink/source
Power Suppely Range	5 – 15 V DC
Power Supply Protection.	20V DC (30 second max.)
Sync Input Protection	120V DC (30 second max.)
Test Point Protection.	35V DC (30 secord max)

TENMA CE